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THE DISCOVERY OF THE GENUS *ECNOMIOS* MASON (HYMENOPTERA: BRACONIDAE) IN CHINA, WITH DESCRIPTION OF A NEW SPECIES

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Abstract.—A **new species** of braconid wasp, ***Ecnomios flavus***, is described. It represents the first record of the genus *Ecnomios* Mason as well as the subfamily Ecnomiinae in China.

Key Words: *Ecnomios*, new species, Braconidae, China

The rare genus *Ecnomios* was first described by Mason (1979) from Papua New Guinea with the type species *E. papuensis* Mason 1979. Thirteen years later a second species of this genus was described from Australia by Austin and Wharton (1992) and, in 1993, another two species were reported from Vietnam by Belokobylskij (1993). Achterberg (1995) provided a key to the species of *Ecnomios* with descriptions of an additional three species from Indonesia. Currently seven species of the genus have been described with an obvious Indo-Australian distribution before this study.

When the first author visited the Shanghai Institute of Entomology, Academia Sinica in 2000, a female specimen of *Ecnomios* was encountered, and further examination proved it to be a new species. It represents the first record of the genus *Ecnomios* Mason as well as of the subfamily Ecnomiinae in China.

The subfamily Ecnomiinae was erected by Achterberg (1985) to hold the aberrant genus *Ecnomios*. A second genus, *Korecnomios* Park and Achterberg 1994, of this subfamily was reported from Korea, with only the type species known (Park and Achterberg 1994). The biology of the subfamily is unknown.

Mason (1979) originally placed his new genus *Ecnomios* in the tribe Orgilini Foerster 1862 (now subfamily Orgilinae), although more recent research suggests it may belong to the "microgastroid lineage" (Quicke and Achterberg 1990). The most prominent shared character with this lineage is the large plical cell of the hind wing, with a distinct cleft distally. A large plical cell appears to be plesiomorphic within the Hymenoptera (Quicke and van Achterberg 1990), but in phylogenetic analysis within Braconidae (Quicke and van Achterberg 1990, Wharton et al. 1992), its presence appears as a reversal. Other possible synapomorphies with the microgastroid lineage are the shape of the first discal cell of fore wing, the comparatively long fore spur, the absence of the lateral carina of the mesoscutum, and the position of vein SR1 of the fore wing. The vertical position of vein r, the oblique vein 1-CU1, the comparatively slender first discal cell and the reduced vein

2-1A of the fore wing suggest some relationship to the subfamily Dirrhopinae within the microgastroid lineage. Autoapomorphies of the Ecnomiinae within the microgastroid lineage are the anteriorly wide pronotum, the short labial palp (in comparison with the maxillary palp), and the sinuate vein 2-M of hind wing. It is to be hoped that suitable material of this group will become available to allow analysis of DNA sequence data, to test these possible relationships further in the context of expanding understanding of braconid, especially microgastroid, phylogeny (Whitfield 1997, Belshaw et al. 1998, Dowton and Austin 1998, Whitfield 2002).

The morphological (including wing vein) terminology used in this paper follows Achterberg (1993).

Ecnomios flavus Chen and Whitfield, new species

(Figs. 1–4)

Female.—Body length 2.7 mm, fore wing length 2.4 mm.

Color: Brownish yellow, metasoma after first tergite light brown; palp pale yellow; antenna brownish yellow, apical half darker; legs yellowish; pterostigma brown, pale basally; veins unpigmented.

Head: Antennal segments 24, length of first flagellar segment 1.5 times second flagellar segment, first, second and penultimate flagellar segments 2.3, 1.7 and 1.6 times their width, respectively, apical segment with a spine; occipital carina complete; length of maxillary palp 0.7 times height of head; length of eye in dorsal view 1.7 times temple; temple strongly and rounded behind eyes, smooth; OOL: OD: POL = 10:10:11; frons smooth and slightly concave medially; face with a wide medio-longitudinal ridge, nearly smooth with long setae, its width 1.7 times its height, as long as height of eye; clypeus distinctly convex, smooth, its width about 2 times its height; length of malar space 1.7 times basal width of mandible.

Mesosoma: Length of mesosoma 2.0 times its height; side of pronotum coarsely crenulate anteriorly and posteriorly, rest almost smooth; precoxal sulcus narrow, crenulate-rugose, anteriorly absent, rest of mesopleuron smooth, shiny; metapleuron coarsely rugose; notauli shallow but distinct, rugose, joining in a broad, distinct and rugose area posteriorly before scutellar suture, with a medio-longitudinal carina in this rugose area; mesoscutum other than notauli largely smooth with setae; scutellar suture with 5 carinae; scutellum flat and smooth, glabrous, without lateral carina; propodeum completely rugose with a distinct transverse carina in posterior half, forming a pair of latero-posterior tubercles.

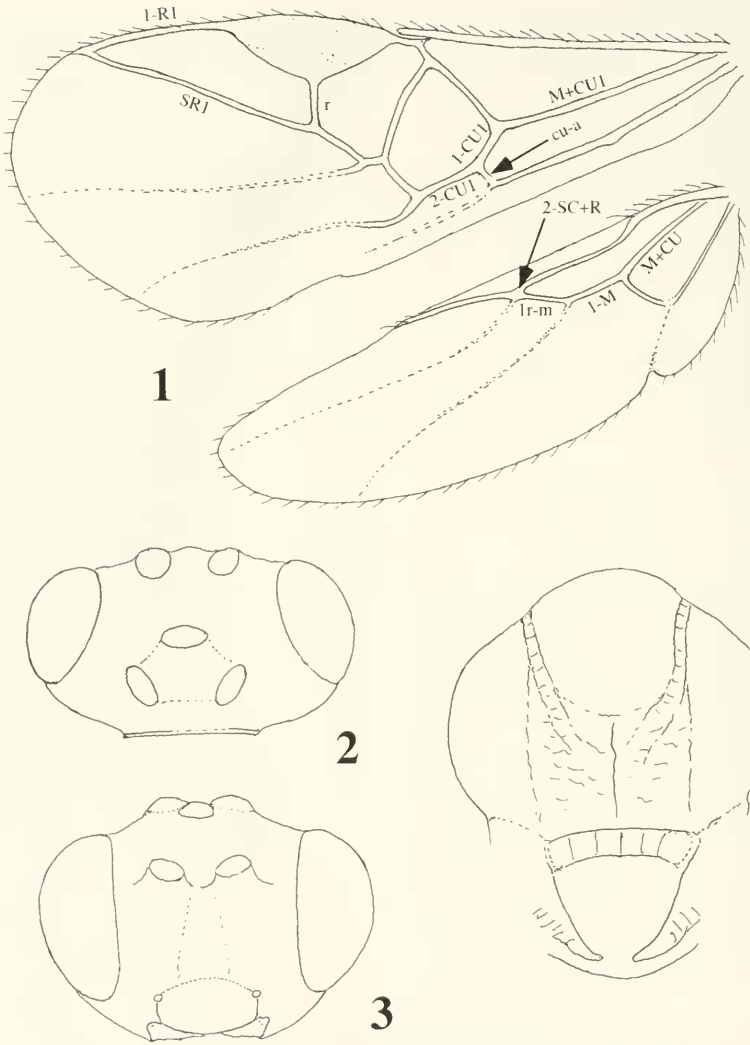
Wings: Fore wing: length of pterostigma 1.2 times vein 1-R1, 2.5 times its width; r: 3-SR+SR1: 2-SR: m-cu = 14:73:18:17; 2-CU1 much lower than M+CU1; SR1 sinuate; 1-CU1: 2-CU1 = 13:20, 1-CU1:cu-a = 13:6. Hind wing: M+CU: 1-M: 1r-m = 36:18:15; base of SR unsclerotised; 2-SC+R much shorter than 1r-m, nearly quadrate.

Legs: Hind coxa with some distinct carinae anteriorly, rest largely smooth; all tarsal claws simple and rather slender; length of femur and basitarsus of hind leg 4.3 and 5.6 times their width, respectively; length of hind tibia 1.25 times hind tarsus; length of hind tibial spurs 0.57 and 0.39 times hind basitarsus; basitarus and second tarsal segment with a distinct ventral carina.

Metasoma: Length of first tergite 0.8 times its apical width, distinctly and linearly widened apically, its surface coarsely rugose, weaker near apical margin where is almost smooth, its dorsal carina absent; second and following tergites smooth; second suture absent; length of ovipositor sheath 0.8 times hind basitarsus, 0.08 times fore wing; ovipositor sheath glabrous.

Male.—Unknown.

Material examined.—Holotype, ♀, China: Yunnan, Hekou, Xiaonanxi, 1956.vi.7, Huang Keren, kept in Shanghai Institute of Entomology, Academia Sinica, Shanghai.



Figs. 1–4. *Economios flavus*, holotype. 1, Wings. 2, Head, dorsal view. 3, Head, frontal view. 4, Mesoscutum, dorsal view.

Etymology.—The specific name "*flavus*" refers to the body color of the new species being almost completely yellowish.

Notes.—This new species runs to couplet 6 in the key of Achterberg (1995), but can be separated from the most closely similar species, *Ecnomios caophongi* Belokobylskij 1993 in having the vein 1-CU1 of fore wing much longer, almost 2.2 times vein cu-a (1.2 times in *E. caophongi*); vein 2-SC+R of hind wing shorter, nearly quadrate (distinctly longitudinal in *E. caophongi*); notauli more distinct with a broad joining area posteriorly (notauli very shallow and rugulose, joining in a small and weakly reticulo-puctate area posteriorly in *E. caophongi*), face smooth with a broad medio-longitudinal ridge (this area much narrower in *E. caophongi*), and hind femur more slender, 4.3 times as long as wide (3.5 times in *E. caophongi*).

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